

Administrative Procedure

CPCC-PRO-SH-40516

PRC-PRO-SH-40516

Chemical Management Program

Revision 0, Change 0

Published: 09/02/2021

Effective: 09/02/2021

Program: Occupational Safety and Industrial Hygiene

Topic: Occupational Safety and Industrial Health

Technical Authority: Gallagher, Michael

Functional Manager: Smith, Courtney

Use Type: Administrative



- Central Plateau Surveillance and Maintenance :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- 100 K Facility :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- Canister Storage Building/Interim Storage Area :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- Plutonium Finishing Plant :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- Solid Waste Operations Complex :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- Transportation :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- Waste Encapsulation Storage Facility :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- 324 Facility :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1
- PFP Ancillary Structures :
Excluded from USQ
Exclusion Reason:
N/A per CPCC-PRO-NS-53097 Table 1

JHA: Administrative

Periodic Review Due Date:01/24/2022

Rev. 0, Chg. 0

Change Summary

Description of Change

Editorial change consists of updating company terminology (CHPRC to CPCCo) and referenced

documents (PRC to CPCC), as well as an update to the current procedure templates, including spell check and updated table of contents.

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1.0 INTRODUCTION

1.1 Purpose

This procedure describes the process used to acquire, receive, store, track, and disposition chemicals, and conduct chemical screenings by the Facility Chemical Custodian (FCC). The purpose of this procedure is to protect the worker, general public, and the environment. This procedure is used to ensure compliance with applicable regulations and statutes, as well as to comply with the requirements of CPCC-PRO-SH-40410, *Hazard Communication Program*. This procedure ensures that chemical product data is stored in a readily accessible database at the Hanford Site by the Central Plateau Cleanup Company (CPCCo) principal contractors.

1.2 Scope

The scope of this procedure includes any chemical as defined by this procedure that is acquired, received, or stored by CPCCo and its subcontractors at the Hanford Site unless specifically exempted by contract.

Specific requirements that must be implemented when using chemicals are addressed in work packages, job hazard analyses, and task-specific procedures.

CPCC-PRO-SH-40410 addresses requirements, training, and controls needed when using and working with chemicals.

1.3 Applicability

This procedure applies to all CPCCo personnel and subcontractors (except those specifically exempted by contract) involved in the procurement, receipt, storage, inventory, justification, or disposition of chemicals.

Personal use items are exempt from this procedure when stored in the same quantity, form, packaging, and concentration available for general consumer use, and used for their intended purpose. The workplace use must be the same as normal consumer use and the duration and frequency of exposure must be in the range of exposures which would reasonably be experienced by consumers using the product as intended by the manufacturer. Such items may include food, beverages, consumer products, cosmetics, drugs, and first aid supplies.

NOTE: *While consumer products are exempt from this procedure, project waste disposal requirements still apply.*

This procedure does not apply to waste or radioactive materials.

1.4 Implementation

This procedure is effective on the date published.

2.0 RESPONSIBILITIES

Facility managers need to designate an FCC for their facilities.

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3.0 PROCESS

This section establishes the process steps for the activities listed below. The user may perform only those sections needed.

3.1 Chemical Procurement

NOTE: *Acquisition includes procurement via purchase or transfer, or any other mechanism in which chemical products are acquired, formulated or brought onsite, including those provided or used by subcontractors.*

Actionee	Step	Action
Employee	1.	INITIATE a Material Request within the Plateau Remediation Contract Materials Service System (PRCMSS) in accordance with CPCC-PRO-AC-40478, <i>Procurement of Materials</i> .
	a.	INCLUDE FCC as an approver on the request for the chemical.
Material Coordinator	2.	ENSURE FCC is selected on the Electronic Bill of Material (eBOM), or otherwise selected as part of the approval process before ordering chemicals.

NOTE: *While this procedure refers only to Safety Data Sheets (SDS), Material Safety Data Sheets (MSDS) may continue to be used for those chemicals in inventory for which the manufacturer has not yet developed an SDS.*

FCC	3.	REVIEW the Chemical Inventory Tracking System (CITS) database or other applicable resources, to determine availability of excess stores of the chemical onsite.
	a.	<u>IF</u> the product is available, <u>THEN</u> REQUEST a transfer from the organization where the material is located, RETURN the eBOM to the material coordinator, <u>AND</u> PROCEED according to Section 3.5.
	4.	ENSURE the SDS is the latest revision from the manufacturer and has been indexed by the Hanford SDS/MSDS Database Administrator.

NOTE: *Screenings are specific to the chemical product and location/facility that it will be stored.*

- | | | |
|--|----|---|
| | 5. | <u>IF</u> the product is new to the ordering location specified on the eBOM,
<u>THEN</u> INITIATE a <i>Chemical Product Screening Form (CPS)</i> (Site Form A-6005-592). |
| | 6. | DETERMINE if Emergency Preparedness must complete a detailed Emergency Preparedness Hazard Analysis (EPHA) screening prior to procurement using the EPHA SCREENING section on the CPS form. |

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Actionee	Step	Action
FCC	7.	<u>IF</u> a detailed screening is required, <u>THEN</u> NOTIFY Emergency Preparedness <u>AND</u> AWAIT the EPHA screening determination prior to approving the CPS form.
Emergency Preparedness	8.	<u>IF</u> a detailed EPHA screening is required, <u>THEN</u> NOTIFY the FCC when the chemical is approved for procurement.
Occupational Safety and Industrial Hygiene (OS&IH)/FCC	9.	EVALUATE the product to identify hazards and/or possible limitations to storage, <u>AND</u> INVESTIGATE opportunities for product substitution and source reduction, as applicable.
OS&IH	10.	CONDUCT a hazard assessment of requested products using the SDS.
NOTE: Section III of the CPS form (Site Form A-6005-592) acts as a screening tool to determine if an Industrial Hygiene Exposure Assessment (IHEA) or equivalent assessment is required. If an IHEA (or equivalent) is not required, an alternate assessment method such as job hazard analysis, craft hazard analysis, or general hazard analysis may be used.		
FCC	11.	ENSURE OS&IH review has been completed before granting approval.
NOTE: Copies of the CPS form may be provided either electronically or in hard copy.		
	12.	PROVIDE copies of the completed form to the Fire Protection Engineer, Waste Management Representative, Environmental Coordinator, Occupational Safety and Industrial Hygiene, and Emergency Preparedness.
NOTE: Emergency Preparedness may require notification prior to procurement depending on the results of the initial EPHA screening (see step 3.1.6 of this section).		
	13.	COORDINATE with the organizations listed in step 12 to identify any specific requirements for the use and/or storage of the product.
	14.	ENSURE any specific requirements are met prior to providing approval to order the product.
	15.	APPROVE the eBOM once all requirements have been met.
Material Coordinator	16.	ORDER products upon approval of the eBOM by the FCC and other approvers.
	a.	<u>IF</u> the product is not approved for purchase, <u>THEN</u> INFORM the requestor.

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3.2 Receiving Chemicals

NOTE: *Chemicals must be tracked unless an exemption has been specifically approved by CPCCo Chemical Management TA.*

Actionee	Step	Action
Receiving Organization	1.	NOTIFY the FCC of chemical products received at the facility.
	2.	RECEIVE <u>AND</u> VERIFY shipment.
FCC	3.	ENSURE manufacturer's label contains the information required by CPCC-PRO-SH-40410.

NOTE: *This step does not apply to articles, consumer products, batteries, pesticides, and radionuclides. See Appendix A, Glossary, and CPCC-PRO-SH-40410 for more information.*

4. IF the manufacturer's label does not contain the required information, THEN COMPLETE a Hanford Hazard label, AND AFFIX to the container.
5. TRACK chemical containers in some manner for inclusion into CITS.
 - Barcoding is an acceptable method of tracking.
6. TRACK total quantities ordered throughout the calendar year for fixed inventory items.
7. TURN material over to requesting organization OR PLACE into applicable storage location

NOTE: *Lists of extremely hazardous substances are found in 40 CFR 355, Appendixes A and B.*

8. UPDATE the CITS database:
 - Within 10 days for extremely hazardous substances.
 - Within 30 days for materials that are not extremely hazardous substances.
9. UPDATE posted chemical inventories within 30 days.

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3.3 Chemical Storage

Actionee	Step	Action
Employee/FCC	1.	<p>PLACE the chemical within a storage area which is:</p> <ol style="list-style-type: none"> In accordance with project or facility-specific procedures, or with the recommendations of the manufacturer (specifically for temperature, moisture, and humidity control) or as indicated by accepted industrial practices. Maintained in a clean and orderly fashion, with chemical or product containers tightly covered or closed when not in use.
<p>NOTE: Chemicals should be stored according to compatibility rather than alphabetically.</p>		
Fire Protection (FP)	d.	<p>Able to accommodate the storage of the applicable chemical material category, sufficiently separated from other categories as needed, so that no mixing will occur in the event of a leak or spill. For example:</p> <ul style="list-style-type: none"> Non-hazardous chemicals Oxidizers Flammable and combustible chemicals Unstable chemicals Acids
FP/FCC	e.	<p>Approved for the storage of flammable materials, e.g., meeting the requirements of CPCC-STD-FP-40404, <i>Fire Protection Program</i>, and HMIS-RD-FP-8589, <i>Hanford Fire Marshal Permits</i>, if the contents of the container are flammable, combustible, or otherwise governed by these requirements.</p> <p>Secondary containment is provided, if the chemical is:</p> <ul style="list-style-type: none"> A liquid that is incompatible with other chemicals stored in close proximity (including adjacent storage tanks). In a container that is not in good condition.
FCC/WMR	2.	<p>While a chemical is in storage:</p> <ol style="list-style-type: none"> ENSURE routine inventory inspections (quarterly) are performed of chemical container condition and manufacturer-specified expiration dates (if provided). <ol style="list-style-type: none"> UPDATE the CITS database with all changes identified in the inventory. <u>IF</u> no changes in the inventory are identified, <u>THEN</u> UPDATE the inventory date in CITS. DISPOSITION outdated material properly and promptly by either disposing of as waste or evaluating the use of the chemical past its expiration date.

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Actionee	Step	Action
FCC	c.	<p><u>IF</u> the facility wants to use a chemical beyond the expiration date, <u>THEN</u> CONSULT with your OS&IH professional and Facilities Engineering to determine if there are quality and/or safety issues with doing so.</p> <ul style="list-style-type: none">• MAINTAIN the manufacturer-specified expiration date in CITS <u>AND</u> ADD the revised expiration date if the decision is made to continue using the chemical.• RETAIN documentation of the decision with Facilities Engineering according to CPCC-STD-IRM-40161, <i>Records Management Standard</i>.
	d.	<p>MAINTAIN a list identifying the type and quantity of chemicals stored at each work location.</p> <ul style="list-style-type: none">• This list shall be accessible to employees.• This requirement may be satisfied by maintaining a copy of the facility/project-specific CITS inventory report.
Employees	3.	MINIMIZE, at every effort, the amount of chemical products that are placed in rad areas.
	4.	USE older chemicals first that are currently in stock.

3.4 Performing an Annual Facility Chemical Inventory

NOTE: *Janitorial supplies used by Hanford Mission Integration Solutions (HMIS) Custodial Services are managed and inventoried by HMIS.*

Actionee	Step	Action
FCC	1.	<p>ENSURE year-end chemical inventory validation for the calendar year by December 1st annually.</p> <ul style="list-style-type: none">• Data collected before October 1st will be considered inaccurate for the year-end inventory.

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3.5 Relocating Chemicals

Actionee	Step	Action
Employee	1.	PROVIDE the chemical container information (chemical name, previous location, barcode number if available) and the intended new storage location of the relocated container(s) to the FCC.
FCC	2.	<u>IF</u> the chemical is new to the storage location, <u>THEN COMPLETE</u> a CPS form (Site Form A-6005-592) in accordance with steps 3.1.5 through 3.1.14.
	3.	NOTIFY the employee when the new storage location has been approved.
	4.	UPDATE the CITS database: <ul style="list-style-type: none">• Within 10 days for extremely hazardous substances.• Within 30 days for materials that are <u>not</u> extremely hazardous substances.
Employee	5.	ENSURE all containers moved to a new location are stored in accordance with project or facility-specific procedures.

3.6 Final Disposition of Chemicals

Actionee	Step	Action
Management	1.	ENSURE a system is in place to control the removal of chemicals from inventory when no longer needed.
FCC	2.	USE CITS to identify useable but no longer needed chemicals as excess, available for redistribution to other Hanford Site users.
	3.	<u>IF</u> an available chemical is requested by another organization or other CPCCo facility, <u>THEN ASSIST</u> in the transfer of ownership.
Employee	4.	COMPLY with any project-specific disposition requirements or directions from the WMR.
	5.	PROVIDE the FCC with the following upon final disposition of any chemical product: <ul style="list-style-type: none">• Chemical container information (chemical name, location, barcode number if available)• Disposition action (i.e., consumed, transferred to another CPCCo FCC, disposed of as waste)• Date of disposition

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Actionee	Step	Action
FCC/WMR	6.	COORDINATE disposition of unneeded or expended chemicals.
FCC	7.	UPDATE the CITS database within 30 days of removal of chemical.

3.7 Handling of Hazardous Chemicals by Subcontractors on the Hanford Site

This section applies to facilities that manage or work with CPCCo subcontractors on the Hanford Site. Vendors who service previously installed equipment that provide, use, and remove chemicals as part of their service are exempt from the requirements of this section. Procedures related to subcontractors may include:

- CPCC-PRO-AC-40478, *Procurement of Materials*
- CPCC-PRO-SH-40410, *Hazard Communication Program*
- CPCC-PRO-PM-24889, *Project Initiation and Execution*
- CPCC-PRO-SH-40078, *Contractor Safety Processes*
- CPCC-STD-FP-40404, *Fire Protection Program*

NOTE: While this procedure refers only to SDSs, MSDSs may continue to be used for those chemicals in inventory for which the manufacturer has not yet developed an SDS.

Actionee	Step	Action
BTR/Contracts Representative	1.	PROVIDE <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals</i> (Site Form A-6004-750) and SDSs to FCC as soon as possible upon subcontractor selection.
FCC/BTR	2.	REVIEW subcontractor-provided <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving Chemicals</i> for completeness. <ol style="list-style-type: none"> VERIFY all chemical products to be used or stored onsite are listed on the worksheet.
	3.	For each chemical listed on the <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving Chemicals</i> : <ol style="list-style-type: none"> ENSURE the subcontractor-provided SDS is entered into the Hanford MSDS system. ENSURE subcontractors receive a Hanford registered (stamped) copy of SDSs.
FCC	4.	REVIEW the <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving Chemicals</i> <u>AND</u> CONDUCT screenings according to steps 3.1.5 through 3.1.8.

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Actionee	Step	Action
BTR	5.	Upon subcontractor mobilization, VERIFY chemical inventory AND ENSURE the information on the amount of chemicals brought onsite is documented on <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving Chemicals</i> (Site Form A-6004-750).
	6.	PROVIDE completed <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals</i> to the FCC.
FCC	7.	ENTER subcontractor chemical inventory into CITS within 30 days (10 days for products containing EHSs).
BTR	8.	ENSURE that during performance of the work: <ul style="list-style-type: none">FCC is notified of kick-off and close-out meetingsFCC is notified prior to any new chemical products that will be brought onsite
FCC/BTR	9.	ENSURE the CPCCo subcontractor: <ul style="list-style-type: none">Maintains SDSs for chemical products approved on the <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals</i>.Updates information (quarterly) on the <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals</i> as long as the subcontractor is performing work or until the contract is closed.Maintains a copy of the <i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals</i> at the work location(s).<ul style="list-style-type: none">Ensures amounts used are updated.FCC will update CITS with appropriate information.Subcontractor needs to track USAGE of chemicals (including weld-rod, structural steel) and provide activities that used the chemicals and amounts used on a quarterly basis.
	10.	ENSURE subcontractor removes all unused chemicals from the worksite.

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4.0 FORMS

A-6004-750, *Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals*

A-6005-592, *Chemical Product Screening Form (CPS)*

5.0 RECORD IDENTIFICATION

All records are required to be managed in accordance with CPCC-PRO-IRM-10588, *Records Management Processes*.

Records Capture Table

Name of Record	Submittal Responsibility	Retention Responsibility
<i>Chemical Product Screening Form (CPS), A-6005-592</i>	Requestor/Facility Chemical Custodian	FCC
<i>Chemical Inventory Worksheet for Sub-Contracted Work Involving the Use of Chemicals, A-6004-750</i>	BTR/Subcontractor	Project/Facility Organization
Decisions to use chemicals beyond their expiration date (step 3.3.2.c)	Facility OS&IH	Facility OS&IH

6.0 SOURCES**6.1 Requirements**

10 CFR 851, *Worker Safety And Health Program*

29 CFR 1910.1200, *Hazard Communication*

29 CFR 1910.1450, *Occupational Exposure to Hazardous Chemicals in Laboratories*

40 CFR 370, *Hazardous Chemical Reporting Community Right to Know*

42 USC 11000 et seq., *Emergency Planning and Community Right-To-Know Act (EPCRA)*

DOE-0223, *Emergency Plan Implementing Procedure*

DOE G 151.1-2, *Technical Planning Basis – Emergency Management Guide*

DOE O 151.1C, *Comprehensive Emergency Management System*

DOE O 460.2A, *Department Materials Transportation and Packaging Richland Operations Office Emergency Preparedness (RLEP) 3.22, Emergency Preparedness Hazards Assessments*

WAC 118-40, *Hazardous Chemical Emergency Response Planning and Community Right-To-Know Act Reporting*

6.2 Commitments

CR-2013-2305, CA #4

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6.3 References

16 CFR 1500, *Hazardous Substances and Articles*
29 CFR 1910, *Occupational Safety and Health Standards*
40 CFR 302, *Designation, Reportable Quantities, and Notification*
40 CFR 355, *Emergency Planning and Notification*
40 CFR 370, *Hazardous Chemical Reporting*
40 CFR 372, *Toxic Chemical Release Reporting*
42 USC 9601 et seq., *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)*
7 USC 136 et seq., *Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)*
CPCC-PRO-AC-40478, *Procurement of Materials*
CPCC-PRO-IRM-10588, *Records Management Processes*
CPCC-PRO-PM-24889, *Project Initiation and Execution*
CPCC-PRO-SH-40078, *Contractor Safety Processes*
CPCC-PRO-SH-40410, *Hazard Communication Program*
CPCC-STD-FP-40404, *Fire Protective Program*
CPCC-STD-IRM-40161, *Records Management Standard*
HMIS-RD-FP-8589, *Hanford Fire Marshal Permits*
NFPA 1 2009, *National Fire Protection Association Fire Code*
NFPA 30, *Flammable and Combustible Liquids Code*
RCW 70.136.020(1), Chapter 70.136, *Hazardous Materials Incidents*

6.4 Bases

CPCC-PRO-FP-40422, *Fire Marshal Interfaces*
CPCC-STD-EM-54759, *Hazards Survey and Emergency Planning Hazards Assessments*

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Appendix A - Glossary

ACGIH - American Conference of Governmental Industrial Hygienists

Aerosol products - Products dispensed from a non-refillable metal receptacle containing a gas compressed, liquefied, or dissolved under pressure, the sole purpose of which is to expel a liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected by the gas. *[DOT Hazardous Materials Regulations, 49 CFR, section 171.8]*

Article - A manufactured item other than a fluid or particle:

- Which is formed to a specific shape or design during manufacture;
- Which has end use functions depending in whole or in part upon its shape or design during end use; and,
- Which under normal conditions of use does not release more than very small quantities (minute or trace amounts) of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

[OSHA Hazard Communication, 29 CFR, section 1910.1200(c)]

Asphyxiant gas - A gas which dilutes or displaces oxygen normally in the atmosphere, possibly causing suffocation. *[DOT Hazardous Materials Regulations, 49 CFR, section 171.8]*

ASTM - American Society for Testing and Materials.

Boiling point - The temperature at which the vapor pressure of a liquid equals the surrounding atmospheric pressure.

CAA - Clean Air Act

Carcinogen - A chemical is considered to be carcinogen if:

- It has been evaluated by the International Agency for Research on Cancer (IARC), and found to be a human carcinogen or potential human carcinogen; or
- It is listed as a human carcinogen or potential human carcinogen in the Annual Report on Carcinogens published by the National Toxicology Program (NTP); or
- It is regulated by OSHA as a carcinogen. The thirteen OSHA-regulated carcinogens are listed in 29 CFR 1910.1003(a)(1).
- It is listed as a carcinogen or a potential carcinogen by the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents (groups A1 and A2).

[OSHA Hazard Communication, 29 CFR 1910.1200(c), and DOE G 440.1-3]

CAS Number - Chemical Abstract Service registry number

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act of 1980; also known as "Superfund."

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CFR - Code of Federal Regulations.

Chemical - Any element, chemical compound, or mixture of elements or compounds.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Combustible fiber - Any material in a fibrous or shredded form that readily ignites when heat sources are present.

[National Fire Protection Association (NFPA) Fire Code, NFPA 1, 2009, 3.3.51]

Combustible liquid - Any liquid having a flash point at or above 100°F (37.8°C), but below 200°F (93.3°C), except any mixture having components with flash point of 200°F (93.3°C), or higher, the total volume of which make up 99% or more of the total volume of the mixture.

[OSHA Hazard Communication, 20 CFR 1910.1200(c)]

For the purposes of the National Fire Protection Association, any liquid that has a closed-cup flash point at or above 100°F (37.8°C). The term includes:

- *Class II liquid*: flash point at or above 100°F (37.8°C) and below 140°F (60°C)
- *Class IIIA liquid*: flash point at or above 140°F (60°C) but below 200°F (93.3°C)
- *Class IIIB liquid*: flash point at or above 200°F (93.3°C)

[NFPA 1, 2009, 3.3.153.1]

Compressed gas -

- A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70°F (21.1°C); or
- A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130°F (54.4°C) regardless of the pressure at 70°F (21.1°C); or
- A liquid having a vapor pressure exceeding 40 psi at 100°F (37.8°C) as determined by ASTM D 323-72

[OSHA Hazard Communication, 20 CFR 1910.1200(c)]

Consumer product - Any article, or component part thereof, produced or distributed:

- for sale to a consumer for use in or around a permanent or temporary household or residence, a school, in recreation, or otherwise, or;
- for the personal use, consumption or enjoyment of a consumer in or around a permanent or temporary household or residence, a school, in recreation, or otherwise.

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For the purpose of the Consumer Product Safety Act, such term does not include:

- any article which is not customarily produced or distributed for sale to, or use or consumption by, or enjoyment of, a consumer;
- tobacco and tobacco products;
- motor vehicles or motor vehicle equipment (as defined by section 30102(a)(6) & (7) of title 49);
- pesticides (as defined by FIFRA [7 USC 136 et seq.]);
- any article (firearms, including pistols or revolvers, shells, cartridges, or any component of any such article) which, if sold by the manufacturer, producer, or importer, would be subject to the tax imposed by section 4181 of the Internal Revenue Code of 1986 [26 USC 4181];
- aircraft, aircraft engines, propellers, or appliances (as defined in section 40102(a) of title 49);
- boats which could be subjected to safety regulation under chapter 43 of title 46; vessels, and appurtenances to vessels (other than such boats), which could be subjected to safety regulation under title 52 of the Revised Statutes or other marine safety statutes administered by the department in which the Coast Guard is operating; and equipment (including associated equipment, as defined in section 2101(1) of title 46) to the extent that a risk of injury associated with the use of such equipment on boats or vessels could be eliminated or reduced by actions taken under any statute referred to in this subparagraph;
- drugs, devices, or cosmetics (as such terms are defined in sections 201(g), (h), and (i) of the Federal Food, Drug, and Cosmetic Act [21 USC 321(g), (h), and (i)]); or
- food.

[Consumer Product Safety Act, 15 USC 2052(a)(1)]

Corrosive - A chemical that causes visible destruction, or irreversible alterations in living tissue by chemical action at the site of contact. This term shall not refer to action on inanimate surfaces. *[OSHA Hazard Communication, 29 CFR 1910.1200(c)]*

For the purposes of the NPFA, the term includes:

- *Corrosive gases* - gases that cause visible destruction of, or irreversible alterations in living tissue by chemical action at the site of contact (e.g., chlorine, sulfur dioxide).
- *Corrosive cryogenic liquids* - cryogenic liquids whose vapor phases are corrosive gases.
- *Corrosive liquids* - liquids that cause visible destruction of or irreversible alterations in living tissue by chemical action at the site of contact (e.g., acids, alkaline liquids).
- *Corrosive solids* - solids that cause visible destruction of, or irreversible alterations in living tissue by chemical action at the site of contact (e.g., sodium hydroxide pellets).

[NFPA 1, 2009, 3.3.72, 3.3.126.2]

Critical point - The highest temperature at which a material changes from a gas to a liquid regardless of pressure.

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Cryogenic liquid - Liquids that have a critical point of <200°C. Liquid nitrogen and liquid oxygen are two examples of cryogenic liquids, which have special properties because of their extremely low temperatures.

CWA – Clean Water Act

DOT - Department of Transportation.

EPA – Environmental Protection Agency

EPCRA - Emergency Planning and Community Right-To-Know Act of 1986, also known as Title III of the Superfund Amendments and Reauthorization Act (SARA).

EPCRA Hazardous Chemical Reporting requirements apply to hazardous chemicals present at or above the associated minimum threshold levels, except for the following substances:

- Any food, food additive, color additive, drug, or cosmetic regulated by the FDA;
- Any substance present as a solid in a manufactured item to the extent exposure to the substance does not occur under normal conditions of use;
- Any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public;
- Any substance to the extent it is used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual;
- Any substance to the extent it is used in routine agricultural operations or is a fertilizer held for sale by a retailer to the ultimate customer.

[EPCRA Hazardous Chemical Reporting, 40 CFR 355.20, 370.2, 370.21(a) or (b) and, 370.25(a) or (b)]

EHS - Extremely hazardous substance - A substance listed in 40 CFR 355, Append. A and B *[EPCRA Emergency Planning and Notification, 40 CFR 355.20]*

Explosive - A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature. Materials/chemicals commonly used for producing an explosive effect.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Explosive material – A chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion *[NFPA 1, 2009, 3.3.98]*

FDA - Food and Drug Administration

FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act

Final disposition - Includes consumption, re-distribution, recycling, and waste disposal.

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Fixed Inventory – An inventory established to be set at a minimum/maximum and kept within those limits.

Flammable - A chemical that falls under one of the following categories:

- A *flammable aerosol*, which yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening, when tested by the method described in 16 CFR 1500.45.
- A *flammable gas*, which at ambient temperature and pressure (A) forms a flammable mixture with air at a concentration of 13% by volume or less; or (B) forms a range of flammable mixtures with air at a concentration wider than 12% by volume, regardless of the lower limit.
- A *flammable liquid*, which is any liquid having a flash point below 100°F (37.8°C), except any mixture having components with flash point of 100°F (37.8°C) or higher, the total of which make up 99% or more of the total volume of the mixture.
- A *flammable solid*, which is a solid other than a blasting agent or explosive, that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited, burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered flammable if, when tested by the method described in 16 CFR 1500.44, it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis. [OSHA Hazard Communication, 20 CFR 1910.1200(c)]

For the purposes of the National Fire Protection Association:

Flammable gas - A material that is a gas at 68°F (20°C) or less at an absolute pressure of 14.7 psia (101.325 kPa), that is ignitable at an absolute pressure of 14.7 psia (101.325 kPa) when in a mixture of 13% or less by volume with air, or that has a flammable range at an absolute pressure of 14.7 psia (101.325 kPa) with air of at least 12% regardless of the lower limit.

Flammable Solid - A solid substance, other than a substance defined as a blasting agent or explosive, that is liable to cause fire resulting from friction or retained heat from manufacture, that has an ignition temperature below 212°F (100°C), or which burns so vigorously or persistently when ignited that it creates a serious hazard. [NFPA 1, 2009, 3.3.126.3, 3.3.220.2]

Flammable Liquid - Any liquid that has a closed-cup flash point below 100°F (37.8°C) as determined by the test procedures and apparatus set forth in Sect 4.4 of NFPA 30, *Flammable and Combustible Liquids Code*.

- *Class IA liquid* - flash point below 73°F (22.8°C) and boiling point below 100°F (37.8°C)
- *Class IB liquid* - flash point below 73°F (22.8°C) and boiling point at or above 100°F (37.8°C)
- *Class IC liquid* - flash point at or above 73°F (22.8°C) but below 100°F (37.8°C)

[NFPA 30 4.3.1]

Flash point - The minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air.

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Hazardous chemical - Any chemical which is a physical hazard or a health hazard
[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Hazardous material -

- Materials which, if not contained may cause unacceptable risks to human life within a specified area adjacent to the spill, seepage, fire, explosion, or other release, and will, consequently, require evacuation;
- Materials that, if spilled, could cause unusual risks to the general public and to emergency response personnel responding at the scene;
- Materials that, if involved in a fire, will pose unusual risks to emergency response personnel;
- Materials requiring unusual storage or transportation conditions to ensure safe containment; or
- Materials requiring unusual treatment, packaging, or vehicles during transportation to ensure safe containment.

[Revised Code of Washington, Chapter 70.136, Hazardous Materials Incidents,
RCW 70.136.020(1)]

Hazardous substance (CERCLA) -

- Any substance designated pursuant to section 311(b)(2)(A) of the FWPCA;
- Any element, compound, mixture, solution, or substance designated pursuant to section 102 of this Act;
- Any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of the SWDA;
- Any toxic pollutant listed under section 307(a) of the FWPCA;
- Any hazardous air pollutant listed under section 112 of the CAA; and,
- Any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the TSCA.

[CERCLA statute, 42 USC 9601, section 101(14)]

CERCLA hazardous substances, designated pursuant to 40 CFR part 302, include:

- *Listed hazardous substances*; elements, compounds, and hazardous wastes appearing in Table 302.4, and

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- *Unlisted hazardous substances*; solid wastes, as defined in 40 CFR 261.2, which are not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), if exhibiting any of the characteristics identified in 40 CFR 261.20 through 261.24.

[CERCLA Designation, Reportable Quantities, and Notification, 40 CFR 302.3 and 302.4(a) & (b)]

Health hazard - A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic effects may occur in exposed employees. The term health hazard includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Highly toxic - A chemical falling within any of the following categories:

- A chemical that has an LD₅₀ of 50 mg or less per kg of body weight when administered orally to albino rats weighing 200-300 grams each.
- A chemical that has an LD₅₀ of 200 mg or less per kg of body weight when administered by continuous contact for 24 hours with the bare skin of albino rabbits weighing 2-3 kg each.
- A chemical that has an LC₅₀ in air of 200 ppm or less by volume of gas or vapor, or 2 mg/l or less of mist, fume, or dust, when administered by continuous inhalation for one hour to albino rats weighing 200-300 grams each.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, the term includes:

Highly toxic gases - A chemical that has a median lethal concentration (LC₅₀) in air of 200ppm by volume or less of gas or vapor, or 2mg/l or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 0.44lb and 0.66lb (200g and 300g) each.

Highly toxic material – A material that produces a lethal dose or lethal concentration that falls within any of the following categories:

- A chemical that has a median lethal dose (LD₅₀) of 50mg/kg or less of body weight when administered orally to albino rats weighing between 200g and 300g each.
- A chemical that has a median lethal dose (LD₅₀) of 200mg/kg or less of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2kg and 3kg each, or albino rats weighing 200g to 300g each.

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- A chemical that has a median lethal dose (LC₅₀) in air of 200ppm by volume or less of gas or vapor, or more than 2mg/L or less of mist, fume, or dust when administered by continuous inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200g and 300g each.

[NFPA 1, 2009, 3.3.161.6]

IARC - International Agency for Research on Cancer

Immediate use - The hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Inert gas - Any gas that is nonflammable, nonreactive and non-contaminating.
[NFPA 1, 2009, 3.3.126.6]

Irritant - A chemical, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.
[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, the term consists of a chemical that is not corrosive, but that causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of 16 CFR 1500.41 for an exposure of 4 or more hours, or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is classified as an eye irritant if so determined under the procedure listed in 16 CFR 1500.42, or other appropriate techniques.
[NFPA 1, 2009, 3.3.126.7]

Laboratory - A facility in where "laboratory use of hazardous chemicals" occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.
[OSHA Occupational Exposure to Hazardous Chemicals in Laboratories, 29 CFR 1910.1450(b)]

Laboratory scale - Work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. "Laboratory scale" excludes those workplaces whose function is to produce commercial quantities of substances.
[OSHA Occupational Exposure to Hazardous Chemicals in Laboratories, 29 CFR 1910.1450(b)]

Laboratory use of hazardous chemicals - Handling or use of such chemicals in which all of the following conditions are met:

- Chemical manipulations are carried out on a laboratory scale;
- Multiple chemical process or chemicals are used;
- The procedures involved are not part of a production process, nor in any way simulate a production process; and

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- Protective laboratory practices and equipment are available and in common use to minimize the potential for employee exposure to hazardous chemicals.

[OSHA Occupational Exposure to Hazardous Chemicals in Laboratories, 29 CFR 1910.1450(b)]

LD₅₀ - lethal dose 50%. The quantity of a substance necessary to kill 50% of test animals within a specified time.

LC₅₀ - lethal concentration 50%. The concentration of a substance administered by inhalation that is necessary to kill 50% of test animals within a specified time.

Liquefied petroleum gases (LP-Gas) - Any material having a vapor pressure not exceeding that allowed for commercial propane that is composed predominantly of the following hydrocarbons, either by themselves or as mixtures: propane, propylene, butane (normal butane or isobutane), and butylenes. *[NFPA 1, 2009, 3.3.126.10]*

Liquid - Any material that has a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM D 5, Test for Penetration for Bituminous Materials. *[NFPA 30 4.2.5]*

Minimum Threshold Levels (EPCRA) - 10,000 pounds for hazardous chemicals, 500 pounds or the listed TPQ, whichever is lower, for extremely hazardous substances (EHS).

MSDS - Material Safety Data Sheet. Under the OSHA Hazard Communication Standard, MSDS/SDSs must be readily available in the workplace for each hazardous chemical which is used. *[OSHA Hazard Communication, 29 CFR 1910.1200(g)(1)]*

New Chemicals – A chemical that has not been used in the facility within the last three years, newly increased concentrations of existing chemicals. A new application or use of an existing chemical. NOTE: Lower concentrations or a new manufacturer of an existing chemical are not “new” chemicals.

NFPA - National Fire Protection Association

Nonflammable cryogenic liquid - A cryogenic liquid with a vapor phase having flash point >200°F (93.3°C)

Organic peroxide - An organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, an organic peroxide formulation consists of a pure, or technically pure, organic peroxide, or, a mixture of organic peroxides alone or in combination with one or more materials in various combinations and concentrations, classified as follows:

- **Unclassified organic peroxides** - peroxides that are capable of detonation or rapid explosive decomposition, and that present an extremely high explosion hazard.
- **Class I** - formulations that are more severe than a Class II but do not detonate.

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- *Class II* - formulations that burn very rapidly and present a severe reactivity hazard.
- *Class III* - formulations that burn very rapidly and present a moderate reactivity hazard.
- *Class IV* - formulations that burn with less intensity than ordinary combustibles or do not sustain combustion and present no reactivity hazard.

[NFPA 1, 2009, 3.3.66, 3.3.67]

OSHA - Occupational Safety and Health Act

Oxidizer - Any chemical, other than a blasting agent or explosive, that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purpose of the NFPA, the term includes:

- *Oxidizing gases* - a gas that can support and accelerate combustion of other materials.
- *Oxidizing liquids and solids, Class 4* - an oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock and that causes a severe increase in the burning rate of combustible materials with which it comes into contact.
- *Oxidizing liquids and solids, Class 3* - an oxidizer that causes a severe increase in the burning rate of combustible materials with which it comes in contact.
- *Oxidizing liquids and solids, Class 2* - an oxidizer that causes a moderate increase in the burning rate of combustible materials with which it comes into contact.
- *Oxidizing liquids and solids, Class 1* - an oxidizer that does not moderately increase the burning rate of combustible materials with which it comes into contact.

[NFPA 1, 2009, 3.3.126.13, NFPA 400, 3.3.69]

Ozone Depleting Substances (ODS) - Chemicals that contribute significantly to harmful effect on the stratospheric ozone layer. Class I and Class II ODS are specifically listed in 40 CFR 82.

Pesticide - (1) Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.

[FIFRA, 7 USC 136, section 2(u)]

Physical hazard - A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Pyrophoric - A solid, liquid, or gaseous chemical that will ignite spontaneously in air at a temperature of 130°F (54.4°C) or below. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Radioactive materials - Materials that spontaneously emit ionizing radiation.

RCRA - Resource Conservation and Recovery Act.

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Sensitizer - A solid liquid or gaseous chemical that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the chemical. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

Simple asphyxiant gas – A gas that does not provide sufficient oxygen to support life and that has none of the other physical or health hazards. [NFPA 1, 2009, 3.3.126.16]

SWDA - Solid Waste Disposal Act.

Toxic - A chemical falling within any of the following categories:

- A chemical that has an LD₅₀ of 50-500 mg/kg of body weight when administered orally to albino rats weighing 200-300 grams each.
- A chemical that has an LD₅₀ of 200-1000 mg/kg of body weight when administered by continuous contact for 24 hours with the bare skin of albino rabbits weighing 2-3 kg each.
- A chemical that has an LC₅₀ in air of 200-2000 ppm by volume of gas or vapor, or 2-20 mg/l of mist, fume, or dust, when administered by continuous inhalation for one hour to albino rats weighing 200-300 grams each.

[OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, the term includes:

- **Toxic gases** - gases with a median lethal concentration (LC₅₀) in air of more than 200ppm but not more than 2000ppm by volume of gas or vapor, or more than 2mg/L, but not more than 20mg/L of mist, or dust, when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 0.44lb and 0.66lb (200g and 300g) each.
- **Toxic material** - a material that produces a lethal dose or a lethal concentration within any of the following categories:
 - a chemical or substance that has a median lethal dose (LD₅₀) of more than 50mg/kg but not more than 500mg/kg of body weight when administered orally to albino rats weighing between 200g and 300g each
 - a chemical or substance that has a median lethal dose (LD₅₀) of more than 200mg/kg but not more than 1000mg/kg of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2kg and 3kg each, or albino rats weighing 200g to 300g each
 - a chemical or substance that has a median lethal dose (LC₅₀) in air of more than 200ppm but not more than 2000ppm by volume of gas or vapor, or more than 2mg/L, but not more than 20mg/L of mist, fume, or dust when administered by continuous inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200g and 300g each.

[NFPA 1, 2009, 3.3.161.11]

Toxic chemical (EPCRA) - A chemical or chemical category listed in 40 CFR 372.65. [EPCRA Toxic Chemical Release Reporting, 40 CFR 372.3]

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TPQ - Threshold planning quantity for EHS. TPQs for EHSs are listed in 40 CFR 355, Appendix A & B.

TSCA - Toxic Substances Control Act.

Unstable (reactive) - A chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shock, pressure, or temperature. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, a material that, in the pure state or as commercially produced, will vigorously polymerize, decompose, or condense, become self-reactive, or otherwise undergo a violent chemical change under conditions of shock, pressure, or temperature. [NFPA 1, 2009, 3.3.161.12]

Vapor Pressure - The pressure, measured in psi absolute, exerted by a liquid, as determined by ASTM D 323, Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method). [NPFA 1, 2009, 3.3.251]

Waste – Materials which are no longer usable or which are the remains from a process or which are beyond their shelf life and need to be properly disposed. A Waste Management Representative (WMR) should be contacted to properly dispose of this material.

Water-reactive - a chemical that reacts with water to release a gas that is either flammable or presents a health hazard. [OSHA Hazard Communication, 29 CFR 1910.1200(c)]

For the purposes of the NFPA, a material that explodes, violently reacts (produces flammable, toxic or other hazardous gases), or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture. [NFPA 1, 2009, 3.3.161.13]